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A
MONOGRAPH
ON
CARPET-WEAVING IN BENGAL

BY
N. G. MUKERJI, M.A., M.R.A.C., F.H.A.S.,
Assistant Director of Agriculture, Bengal.

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A MONOGRAPH ON CARPET-WEAVING

IN BENGAL.

HISTORY.

CARPETS fall under two heads. The most ancient are those that are produced by weaving, and the more modern are those that are produced by both looping and weaving. Sir George Birdwood thinks that the former (called *darris* and *satranjis*), "illustrate the most ancient ornamental designs in India, perhaps earlier even than the immigration of the Aryans." At Amreli in the Baroda State, and in other parts of Southern India, *darris* are made in which complicated patterns are woven in, depicting hunting scenes, etc. The manufacture of pile-carpets (called *kalins*, *galichas*, *dulichas*, and *asans*) was probably introduced by Persian workmen and their descendants, who followed in the wake of the Muhammadan conquerors, to the principal ruling cities of India. Persia was recognised by the Muhammadan rulers as the home of the best carpets, and they delighted in importing prayer-mats and floor-rugs for their personal use from that country. On settling in India, the workmen from Persia reproduced the famous fabrics in this country, and taught the art to the natives. *Kalins* or *galichas* and *asans* have their pile made of wool, and *dulichas* of cotton. The warp and the woof are nearly always made of cotton. Patna was at one time famous for its pile-carpets, though the industry has practically died out within the past few months. In the district of Gaya where the industry is carried on at Obra, Koraiपुर, and Daudnagar, it was introduced by Nawab Daud Khan, a Rasaldar of the Emperor Aurangzeb, who founded the town of Daudnagar about the latter part of the 17th century, on receiving a grant of parganas Anchha, Manora, and Goh, as a reward for his conquest of Palamau. The original manufacturers were brought from Delhi, Agra, and Mirzapur, and the present carpet-weavers of Gaya trace connection with the district of

Mirzapur and to Nizamabad in the district of Azamgarh. *Darris* and *satranjis* are made in Patna, Gaya, Bhabua, Champaran, and Bihar, and in Rangpur in Eastern Bengal. In support of Sir George Birdwood's theory of the Hindu origin of cotton *darris* and *satranjis*, and the Muhammadan origin of woollen *kulins*, may be pointed out the fact, that in 1901 out of 413 woollen carpet weavers 328 were returned in the Census reports as being Muhammadans and only 85 as being Hindus; while among 1,415 cotton carpet and rug makers, 728 are returned as being Hindus, 685 as being Muhammadans and 2 as being Animists. The cotton carpet sellers are however more Muhammadans than Hindus. Of the 1,542 cotton carpet sellers, 911 are returned as Muhammadans and 631 as Hindus. At Obra the two carpet merchants are both Hindus, and at Daudnagar also the carpet merchant is a Hindu.

2. The carpet-weaving industry never took hold of Murshidabad or Calcutta. The damp and warm climate of lower Bengal is unsuitable for rearing sheep or using carpets to any extent, and the mat-weaving industry of lower Bengal may be regarded in the light of a substitute.

3. The carpet-weavers, like all good artisans of India, are extremely reticent to outsiders about the details of the industry. They suspect that the motive of any enquirer into the state of their industry is to take the bread out of their mouths. The Collector of Patna says, "no amount of assurance on my part could reassure their suspicious minds."

THE INDUSTRY IN JAILS.

4. Considering the low state of the industry at present, the manufacture of *darris*, *satranjis* and pile-carpet, carried on with profit in Jails, cannot be said to do the industry any harm. Though Sir George Birdwood and Mr. T. N. Mukharji are both very much against the jails manufacturing these articles, it is very doubtful if the industry would have lived at all in its higher branches, but for the encouragement given to it in jails. There some pieces of fairly good pattern are always ready for sale, and the Jail Depôt in Calcutta has always a fine collection for

show and sale, including a collection of patterns. The difficulty with native weavers working on their own responsibility is, that they always need to be given an order often several months in advance and some earnest money. Any pieces they may have ready without previous order are always got hold of by their money-lenders or by carpet merchants, who leave to the weavers very little margin of profit. The *mahajans* will not buy from the weavers any really fine pieces of carpet, as they are expensive. It is only the local rich dealing direct with the weavers that can afford to wait for a good piece of carpet, and to pay a portion of the price in advance. But even they are so particular about the price they pay, that they seldom get any really good stuff. The local rich are usually not enlightened enough to encourage local art, and the art consequently dwindles; and if it had not been for the jails keeping up a high standard of efficiency in the art, and a stock always ready for sale, the industry might have died out altogether. Travellers and travelling merchants buy the best stuff they can get from the shops, which are at best poor. They cannot afford to advance money and wait. The quantity of carpets turned out by jails is comparatively so little, that beyond keeping up a demand and a taste for Indian carpets, they do little else, and the creation of the demand and the taste helps to keep up the lower branches of the industry. The consequence is that the number of carpet-weavers has increased within recent years, though that of good carpet-weavers has steadily declined since the days of Muhammadan patronage. In fact the sale of Jail carpets represents, on the whole, the patronage offered to the art by the British Raj, whose principles of Government are, and must be, different from those of the Muhammadan rulers in the matter of patronage of art-ware, mainly because no Governor or District Officer can wait very long for a good article, and the Jail articles are good enough for their purpose for taking home on furlough or retirement. Even the Nepal Durbar grew impatient of advancing money to the Kalinbafs of Patna, and went to Mirzapur in the United Provinces for their supply. For want of patronage the work had to be readjusted and the weaving of high class carpets had to be practically given up. Under such circumstances, the jails stepping in only keeps the knowledge of the art alive

among a number of people, and offers a source of supply of carpets without advances. The jail does another very useful thing. In the Jail Depôt patterns can be purchased, and with patterns weaving of carpets is a comparatively easy art. In the case of the village weaver, the pattern is in the mind of the workman.

5. The system of weaving in vogue in Jails is an improvement over the ordinary native system. For the sake of economy, the native weaver sits at the end of his room, with his back against the wall, with his feet in a long hollow before him and the warp in front of him, so that the light from the entrance to the room or windows is interrupted by the web, in front of him. In the Jail the light falls directly on the web, the space between the loom and the wall not being utilized. In the Jail, all the thread used is new, though clippings from *darri*-weaving are often utilized for making cotton pile-carpets, as in the Chaibassa Jail. The *panja* used has a straight handle and ten forks, and it is usually manufactured in the Midnapore Jail. The shears used are English spring-shears and not the uncouth scissors of local manufacture. The teasing needle employed after each series of looping and putting in of the woof is not used by village weavers.

EXTENT OF THE INDUSTRY AND ITS INDUSTRIAL POSITION.

6. The carpet-weaving industry of Bengal is of very minor importance, the total number, including dependent members of families who subsist on it, being less than 5,000. In 1891 the total number of woollen carpet-weavers was 371, and of cotton carpet-weavers and sellers 2,169, against 413 and 4,004, the corresponding numbers in 1901. It cannot be therefore said that the number of carpet-weavers and their dependents within recent years has been going down, though the tendency of late years no doubt has been towards turning out cheaper articles for which there is greater demand, *i.e.*, *darris*, *dulichas*, and *asans*, instead of carpets proper. Of the 413 woollen carpet-weavers, the actual workers consist of 181 males, and 1 female, while their dependents number 223. Only one person is returned as partly depending on agriculture. Of the cotton

carpet and rug makers, 501 are males, 111 female workers, 830 dependents, and only 36 of the 501 actual male workers are returned as partially depending on agriculture. This shows that these people are only slightly less prosperous than the woollen carpet-weavers. Of the 1,541 carpet-sellers, there are 617 males, 392 female workers, and 549 are dependents; and of the 617 male workers, only 17 are returned as depending partly on agriculture. This class, therefore, though prosperous, is obliged to employ their women more than the weavers. The comparative prosperity within late years of the carpet-weaving industry is indeed a sign of the prosperity of this Province, and is a refutation of the theory of some who think that the Province is annually getting poorer. But it must be admitted that high class carpets are scarcely ever made now-a-days for the native gentry, and this is attributed to the impoverished condition of the higher classes among natives. But it is partly at least due to apathy also.

7. What has been said here about the industry generally will be supported by the statements contained in the report from Patna which has still the largest number of carpet-weavers in Bengal. The report makes the following remarks:—

8. "Patna.—The Census Report of 1891 gives some useful information, but in the last Census the number of persons engaged in carpet-making was not separately shown. The calculation in families is only an attempt at an approximation based upon local investigation.

"I.—KALINS.

About 25 years ago.

About a decade ago.

Present day.

100 families

...

Not given. The decade was repaired in this period.

14 or 15 families.

"Though the present number is given as 15, some of these take up *kalin*-making only now and then. There were only two proficient *kalin*-makers in 1891. Now, only one, Khodabux,* ekes out a precarious living from his profession.

* From personal enquiry, I found that Khodabux was too old and feeble to do any work, and that his two sons had given up carpet-weaving and taken to weaving of *darrit*.

“II.—PANJA (OLD LOOM).

About 25 years ago.	About a decade ago.	Present day.
...	200 families	... 25 families.

“III.—KARGA (NEW LOOM).

About 25 years ago.	About a decade ago.	Present day.
Non-existent	50 families	... 600 families.

“The Census Report of 1891 gives the total number of carpet-makers as 921, almost equally divided between male and female. The present number may be put down at about two thousand.”

9. Thus the re-adjustment of the industry on new lines in the district of Patna has been for the good of the industry, though an aristocratic industry has been democratized. The weavers themselves are generally more prosperous now, and they do not feel the need of troubling their women to partake of the industry to that extent to which they did in former years. The Collector of Patna remarks: “One fact stands out from this brief survey, viz., that utility and economy are taking the place of refinement and luxury. The struggle for existence is becoming keener in the upper classes of Indian Society. The blanket has superseded the *kalin*; the *karga darri* is more durable* and valuable than *panja*, its predecessor.” A large number of carpet shops may be seen in the Sultanganj mahalla of the city.

10. In the district of Patna, carpet-making is practically confined to the Patna city. In fact, Patna is the great seat of *darri* manufacture in Bihar. The manufacture of *kalin* is practically extinct; cotton *dulchus* and woollen *asans* are still made in the jurisdiction of thanas Sultanganj and Alamganj in Patna city; *darris* and *satranjis* are made in Sultanganj, Alamganj, and Peerbahore, also by 3 families at Bhasasur, Bihar town, by a few families at Dinapore, and in the local jail. Cotton *dulchus*, 6 feet by 3 feet, are sold for annas 14 each. These are however made out of thread spun from old quilts. *Asans*, 1½ ft. by 1½ ft. are sold for 4 annas each. The warp and woof of *asans* are made of old cotton, but the pile is of new wool. The

* It is not correct to say the *karga darris* are more durable than the old *panja darris*.

number of warp threads in each of the two layers of the $1\frac{1}{2}$ ft. of *asans* is 124. In the Patna Jail, *darris* are sold for Rs. 1-10-6 per *seer*, the cost of the dyed material being Rs. 46 per maund. The only *galicha* of Patna make which I saw is at the house of Babu Purnendra Narain Singh. But this was made several years ago.

11. Gaya.—In Gaya there are 42 men at Obra and 5 at Daudnagar who can manufacture *kalins*. The workmen who are usually relations of a master-weaver earn about 4 annas a day (after the period of apprenticeship is over) and the master earns about Rs. 10 or 12 a month. The carpet-weaving industry goes on briskly at Obra, and the fact that Hossan Bux, one of the master-weavers, lost 6 men from plague and the whole village 11, is considered a great loss to the village, as they were all getting full work when they were living. The best carpets in Bengal are made to order at Obra by five weavers named Sobrati, Doman, Hossan Bux and his brother Raji Mian, and Matbar. These are able to dye yarn with native dyes and turn out high class fabrics if they get the price. They are also able to reproduce any pattern, if the pattern is sent to them. Sobrati is regarded by the whole village as the *ostad* or the expert. He had gone off his head, but now he is well, and though still deep in debt, he is able to work. He employs three relations and turns out common *asans* for which the demand is unlimited. Doman employs five relations, and the female members of his house help in the preparation of the warp and the dyeing of the thread. Hossan Bux has the largest establishment of all, employing five relations and three servants in turning out both *kalins* (*galichas*, *dulichas* and *asans*) and *darris*. Raji Mian employs two relations and a servant. He also turns out both *kalins* and *darris*. Matbar has two servants. The other *kalin*-makers produce 9 inches by 9 inches *asans*, which are required for ceremonial purposes by Hindus. These are sold at 1 to 2 annas apiece as the stuff is quite worthless. The principal *sattranji* makers of Obra are Sakawat, Akbar Ali, and Ali Raja. The place being out of the way, few orders come, and the men are never prompt in carrying out orders. The weavers are, however, constantly employed in turning out articles which the two resident *mahajans* will buy. The names of the two firms of *mahajans* are (1) Chunilal Hazari Lal and (2) Hazari Lal.

12. **Shahabad.**—In Shahabad, *das* and *kalins* are made in the Arrah Jail, in the town of Sasaram, in Nasiriganj, Chenori, and at Bikramganj, all in the Sasaram sub-division, and at Bhabhua. There are about 16 families of *Kalinbafs* in the town of Sasaram, and 10 families of butchers follow the profession of *darri*-making while following their hereditary occupation also. In the town of Bhabhua there are 38 families of *Kalinbafs* who weave *darris* only. They have 20 looms among them. The condition of the *Kalinbafs* of Sasaram is fairly prosperous.

13. **Champaran.**—In Champaran, the *darri* and *satrangi*-making industries are carried on to a fairly large extent, specially at Mehsi and Golindagunge, where cotton cultivators do both spinning and weaving. Machine-made yarn is however oftener used. The jail-made *darris* are preferred to those made in villages. According to the Census Report for 1891, Champaran had 672 persons depending on *darri*-weaving that year. The census report for 1891 gives no separate figures for carpet and *darris* weavers for the different districts, and the district report gives no further information on the point.

14. **Muzaffarpur.**—In Muzaffarpur, the industry is practically confined to the towns of Muzaffarpur and Hajipur. There are 88 persons engaged in the industry at Muzaffarpur, and the total value of the carpets, annually made in the district is only Rs. 6,000.

15. The industry is not considered a flourishing or a profitable one, and the monthly savings of individual weavers have been estimated at only Rs. 3 or 4. The best carpets in Bengal are made in the Muzaffarpur (as well as Bhagalpur) Jail.

16. **Other Districts.**—In Hazaribagh, Singhbhum, Manbhum, Bhagalpur and Saran, the industry is carried on in the jails only. At the Purulia Industrial Show, Miss Shushila Biswas exhibited a few specimens of hand-made woollen carpets. Hand-made *asans* for sitting on were also exhibited at Khulna, at the last Agricultural and Industrial Show.

CARPET WEAVING SCHOOL.

17. The carpet-weaving establishments of jails may be looked upon in the light of schools. Unfortunately when the prisoners go

out they never take to the industry, and the teaching is thrown away on them. They have not the capital to start on their own account, and it would be well if a company or an association were to employ them after their release. There is one school for girls conducted by the Church of England Zenana Mission Society at Barnagore, north of Calcutta, where the weaving of *galichas* and *asans* is taught to the girls by a professional weaver from Mirzapur.

18. The Rev. Dr. Graham of Kalimpong is also arranging for the teaching of the industry in connection with the Colonial Homes at Kalimpong.

DISPOSAL OF FABRICS.

19. General.—Most of the carpets and *darris* made are disposed of locally, *i.e.*, sold by local *mahajans*. The Sonapur Fair is also a great place for their disposal. The *mahajans* export the carpets to Calcutta and the Bengal Districts generally, and there is sale in all parts of Bihar also.

Patna.—The *panja* or old loom *sabranjis* are sold by weight at about a rupee per seer. The *karga* or new-loom *darris* sell by measurement at 8 annas up to Rs. 3 per piece, according to size and quality. The price has increased of late years owing to the increase of price of cotton and to the larger demand for *karga darris*. Paliram and Haziram Phakira, merchants of Patna, are the principal exporters from this district.

20. Gaya.—The Obra carpets of Gaya sell at various prices, the cheapest being sold at 1 anna. One to three-anna carpets are 6 to 9 inches square and of flimsy and worthless materials. They are sold in large quantities, as Hindus offer them to priests on funeral and other occasions. *Asans* meant for use, *i.e.*, for sitting on at meal times or at worship, are 2 to 2½ ft. square. These are sold from 8 annas to Rs. 8 per piece, the cheaper kinds being usually sold by twenties. An *asan* which was priced at Rs. 7 weighed 3 seers exactly. The coarser and cheaper carpets are made of cotton thread manufactured from old cotton of quilts which sells usually at 3 to 4 seers to the rupee according to the fineness or coarseness of the yarn. The thread spun from it is sold by women spinners at less than

half the rate at which finer thread made out of new wool and cotton is sold. Sheep's wool and the imported cotton thread sells at 1 seer and 1 chitak per rupee.

21. Arrah.—In Arrah Jail, the raw material costs 14 annas to Re. 1 per seer, and the price at which *darris* and *satranjis* are sold from this jail is Re. 1-6 to Re. 1-8 per seer, and that at which *kalins* or *galichas* are sold varies from Re. 1-8 to Rs. 2 per seer. In the Sasaram subdivision, however, *darris* and *galichas* are sold by measurement and not by weight.

22. The annual sale of *darris* and carpets in Sasaram may be put down at Rs. 26,000, about Rs. 14,000 representing the value of local sale, and Rs. 12,000 that of export to Calcutta and other parts of Bengal.

23. Saran.—In Saran, where carpets are made in the jail only, there is no local demand for the article, and the produce is sent to the Calcutta Jail Depôt for sale, where carpets of cotton yarn are sold for Re. 1-12 per seer, and of woollen yarn at Rs. 2 per seer.

24. The Jail Depôt in Calcutta is the place where, the surplus stock of carpets and *darris* from all the jails accumulate and they are sold at the same price in Calcutta as in the mufassal jails.

INDUSTRIAL POSITION OF CARPET WEAVING.

25. I have already pointed out that where a readjustment of the art has been effected, as at Patna, the weavers are in a flourishing condition, though outside Obra the condition of the carpet-weaving proper is in a most deplorable condition. In neither, the carpet or the *darri* manufacturing industry is there any dependence on agriculture, and hardly any necessity for employing women and children. An industry which is able to support a large proportion of non-working women and children must be considered a flourishing industry. Yet, many of the district reports assume a very pessimistic tone about it. The Gaya report says, the daily earnings of a weaver are only 2 to 4 annas, and the Muzaffarpur report says the monthly earnings of a weaver are only Rs. 3 or Rs. 4. The Shahabad report, however, enters into a calculation which shows that *darri*-weavers are able to earn Rs. 7 to Rs. 10 a month, and *kalin*-weavers

about Rs. 12-8. This seems to be a more reasonable supposition, as the social position of the *darri* and carpet-weavers are everywhere about equal and much above that of an ordinary cultivator. The calculation given in the Shahabad report is this: The ordinary size of a *darri* is $4\frac{1}{2}$ cubits by $2\frac{1}{2}$ cubits. The quantity of cotton yarn required for this size is $2\frac{1}{2}$ seers at $1\frac{1}{4}$ seer to the rupee. The cost of colouring the $2\frac{1}{2}$ seers is 4 annas. The *darri* sells for Rs. 3 to 4, so that the earnings of a weaver per *darri* is 12 annas to Re. 1. A *darri* takes 2 to 3, and very good ones up to 8 days' weaving. A *galicha* of the same size takes 8 days' weaving and the earnings of a weaver on a *galicha* are Rs. 3-4. Hence the monthly earnings of a *darri* weaver is Rs. 7 to Rs. 10 and of a *galicha* weaver Rs. 12-8. The average monthly outturn of a loom in *darris* of different sizes is about 10, valued at Rs. 30, and the value of the outturn per family per year may be put down at Rs. 300 to Rs. 400. From personal observation at Obra and at Patna, I am able to say that the master-weavers earn at least Rs. 10 a month and their workmen, who are usually the relatives of the masters, get Rs. 6 to Rs. 8 per month in addition, and the whole earnings of a family is often Rs. 30 or more per month.

26. The Patna report says that the exporting merchants advance money to the weavers and also machine-spun thread. In some of the larger concerns labourers are engaged who are paid according to the work done.

27. A *satranji* manufacturer earns from eight to ten pice a day, a *darri* maker from three to four annas. *Kalins* do not ordinarily pay better than *satranjis*. Fine *kalins* fetch better prices, but they are not often ordered. As most of the weavers of Patna and other districts are now *darri* weavers, the earnings of operatives are probably 3 to 4 annas a day, and the substantial weavers who employ the operatives earn Rs. 10 to Rs. 12 each, *i.e.*, the earnings of a *darri* establishment are about the same as of a *kalin* establishment. Mr. N. N. Banerjei in his "Monograph on the woollen fabrics of Bengal" speaks of the *kalinbafs* in this way:—"Their industrial position is also very fair, as the goods turned out by them find a good sale in local fairs and markets, and are also often exported." I endorse this view from what I have seen of them.

MATERIALS USED.

28. For *kalin* or *galicha* manufacture, either cotton or cotton and wool are used, and for *satranji* and *darri* manufacture, cotton only. Cotton *galichas*, the pile also of which is of cotton, are called *dulichas*. The wool is, except in the case of one or two jails, invariably the wool of the country. No distinction is made between lamb's wool and sheep's wool, which are both mixed up in preparing the roving. The wool roving is prepared by Gareris and sold in *hâls* and bazars for Re. 1 per seer, and sometimes up to 1 seer and 2 chitaks. The cotton in the case of the jails is the yarn imported from the Empress Mills, Nagpur. In the case of the village weavers, English, Bombay or Ahmedabad yarn and home-spun cotton are both employed, and for cheap articles cotton from old quilts spun into a coarse thread is used. The cotton, if new, is bought at about a rupee a seer, and if from old quilts 3 or 4 seers to the rupee. There are three shearings in the year, namely, autumn shearing in October, spring shearing in February, and summer shearing in June. The spring shearing gives the softest wool. The cut wool lies in a bundle on the floor, and the hairs are separated by a bow called the *dhuna*. The bow string is struck, and by beating among the hairs, it separates them. This process goes on until the whole is a soft mass. The wool is then made up into bundles, large enough to hold in the hand, and spun like cotton by the Gareris or sheep-keepers themselves. The thread is boiled after purchase by the *kalinbafs* in a preparation in which the proportion of *saji* to water is 1 to 8. The thread is then washed in cold water and it becomes soft after washing. If the boiling in *saji* water is continued too long, the thread gets disintegrated and there is great loss. Experience guides the *kalinbafs* in this matter. Hajipur wool is often imported into Patna, and it is sometimes used as wool in old loom or *panja satranjis*, and sometimes as warp in *kalins*. The roving of wool is as a rule used for making the pile only for *kalins* and *asans*. Cotton from old quilts is often used for making the warp and the woof of both *galichas* and *satranjis*. This cotton is not carded, but is taken up in small pieces and thread spun from it. Mill yarn is employed chiefly

for *ponja* warp and warp for good *kalins* and *asans*. Cotton from the Victoria and Elgin Mills of Cawnpore, and also from Calcutta Mills is used as woof for *karga* looms. At Patna, for the *karga* loom, the thread used for the woof is what is called "Mogul ticket" thread from Bombay, which costs the weavers Re. 1-4 per seer. For the woof, either No. 8 or No. 5, or No. 4 thread is used, which is bought, respectively, at Rs. 2-3, Rs. 2, and Re. 1-15 per bundle of 5 seers. The mill-made thread has almost replaced the hand-spun cotton yarn from locally-grown cotton. *Darris* are usually made out of yarn from the Empress Mills at Nagpur; the cost price of the cotton is 14 annas to Re. 1 per seer. The coarse yarn from old quilts sells at 3 to $5\frac{3}{4}$ seers to the rupee. Mill-made yarn is preferred for its cheapness, a seer of locally spun new thread being obtainable at 13 annas, while 10 annas per seer is the usual cost of the machine-made article. When cotton yarn No. 10 is bought, it is opened out and twisted six or ten folds in ordinary spinning wheels,—the six folds is for the warp and the ten fold is for the weft. Dyed cotton yarn is used for the weft. For *darris* and *satranjis*, the horizontal loom is used, and for pile carpets, whether *galichas* or *asans*, the vertical loom is used. In some jails, the vertical loom (which occupies little space) has been introduced for weaving *satranjis* also. *Satranjis* are made of various sizes, and the patterns turned out are also various. The waste yarn from making *darris* can be used for making the pile of the carpet as is done at the Chaibasa Jail. The pile is about an inch in thickness, in the case of woollen fabrics, but about $\frac{1}{4}$ inch in the case of cotton *dulichas*. The dyeing materials are usually foreign aniline dyes. But indigenous dyes are also used, such as indigo, lac, turmeric, safflower, *bakam*, *kamela*, *palas*, *lathan* and *al*. The yarn dyed in indigo is supplied by the Buxar Central Jail to other jails. From the Nagpur Mill dyed cotton yarn is obtained for Rs. 46 a maund. At Sasaram, native cotton thread costs one rupee for $1\frac{1}{4}$ seer, and it is dyed at home by the weavers.

DYEING.

*29. Though dyed thread is sometimes bought, the manufacturers generally dye the cotton or wool themselves. For the snow-white

colour the washerman is employed, who charges one anna for a seer of yarn and gives back 14 chhitaks for every seer of wool he takes for washing. For the best carpets, the wool is dyed with lac and indigo. The aniline dyes furnish the colouring of the common carpets. For dyeing wool with aniline red, it is boiled three times in the dye mixed with water, to obtain permanency of the colour, and the wool is washed well after each boiling. Other aniline dyes are simply mixed in cold water and used. The dyed wool is then unravelled or re-wound by the women of the house. For cotton *darris* and *satranjis*, blue and white in successive stripes are the usual colours employed. The blue colour is obtained by boiling one seer of indigo, one seer of lime, three-fourth seer of treacle, and two to three seers of *saji*, with eight *gharas* of water. The proportions are changed according to the strength wished for. The preparation is kept in a large bowl about two and-a-half feet in diameter sunk in the ground to within an inch of the top. The thread is moistened and kept soaked in the preparation till the dye is absorbed. It is then exposed to the air and washed; and if darker colour is wanted, dyed again as before. Five dyeings in the indigo vat give what is called black dye. For making carpets, *i.e.*, *palichas*, *dulichas* and *asans*, all colours are employed. The recipe for aniline dyes is simple, and this is one of the chief reasons for the popularity of these dyes.

30. For dying thread blue the cost is 2 to 4 annas a seer; for red $1\frac{1}{2}$ annas; for green 1 anna, and for catechu 2 annas. In washing and dyeing wool there is loss of 1 chitak of weight for every seer.

31. For more detailed information as to the methods employed in different districts for dyeing cotton and woollen thread, the reader is referred to Mr. N. N. Banerjee's Monograph on Dyes and Dyeing.

PATTERNS AND PRICES.

32. Carpets whether made of wool, cotton or a mixture of wool and cotton are made of various recognized patterns each of which is represented by a technical term, denoting the nature of the

pattern, the name of the patron, place of origin, or some other accident in connection with it. The patterns are all fantastic, representing nothing in particular, and only effect is aimed at by symmetrical posing of the fantastic figures, and harmonious blending of colours. The neatest patterns in use are employed in jails, and in the Jail Depôt patterns can be bought. The names of the principal patterns are: Gopiganj, Madhosingh, Jangipur, Jafri, Patnai, Pinjra, Jhardar (tree-pattern), Jaldar, Phuldar, Irani or Persian, Hang-Hassia (*darri* or mat-pattern), Kashmir or Shawl pattern, Akbar Shahi, and Ali Musjid.

33. All the patterns have a border (*hansia*) and a ground in the middle, and the borders have each a separate name, such as *chhuria*, *kaul*, *salbafi*, *tinpahari*, *pathar-kala*, etc. Even in the same village one *kalinbaf* may know by heart one pattern of which another may not know even the name. At Obra, it is not the custom for a master-weaver to direct the workmen as to the number of loops of different coloured thread each is to put in at any particular moment in a particular place. The workmen has it all by heart.

34. The prices vary from one anna to Rs. 600. *Asans*, *ashnas* or *ashnis* used for sitting on at prayer or meal times, may be valued at as little as 3 annas a piece, or as much as Rs. 6 or Rs. 8 a piece. The 2 feet by 2 feet cotton-pile *asans* made in the Singhbhum Jail are sold at Rs. 3 each, but this is a high class *asan* which takes 12 days' making. The coloured materials and the white warp and woof (about $1\frac{1}{2}$ seers) costs Re. 1-14, and 12 days' wages in the jail are calculated at Re. 1-2. An ordinary good *asan* takes two days' making, and it costs 13 annas,—at least that is the price which Sobrati of Obra gets for his *asans*. There is a so-called *asan* which is sold at Obra, 20 for 20 annas. This is 9 inch square and made for ceremonious purposes only, and not for use. One man is able to finish on an average one and-a-half piece a day of the common kinds of *asans* which are 2 feet by 2 feet. The larger *galichas* may be made of any size, but the usual size is 7 feet by 4 feet and the price of this size varies from Rs. 6 to Rs. 30 according to quality. In jails, *galichas* are also sometimes sold by the weight at Re. 1-8 to Rs. 2 a seer.

35. *Darris*, including *satranjīs*, can be hardly dignified with the name of carpets. They are usually made of three patterns:—

- I.—Flower pattern made with different coloured cotton wool on plain white ground.
- II.—Greek pattern, with angular stripes on the border.
- III.—Buxar tent pattern is the ordinary striped tent *darri*. This is called the Lil-abi pattern at Obra, the stripes being alternately deep and light blue, and the borders have white diamond-shaped spots. Though *darris* are usually made of white and blue stripes, other colours are sometimes used, such as *gulabi* (rose pink), *gulwar* (deep red), *basanti* (yellow), and *narangi* (orange).

36. Sold by the weight, *darris* are usually sold for Re. 1-6 to Re. 1-8 per seer, and as the price of the coloured thread is 14 annas to Re. 1 per seer, there is usually an income to the weaver of 8 annas per seer of yarn used, and the income is larger when they colour their own thread, as they usually do. In 1905, at the Arrah Jail were sold 104 *darris* weighing altogether 26 maunds 7 seers and 15 chitaks. As a rule, the total cost, including that of material, comes to Re. 1 per seer and 2 annas per seer can be obtained as net profit after paying the operatives. Bhutia wrappers and door-curtains made in Birbhum and other jails can hardly be classed as carpets, though they are sometimes spread on the floor or used as bed covers.

PREPARATION OF WARP AND WOOF.

37. These preliminary processes have been described in Mr. N. N. Banerjee's Monograph on Woollen and Cotton Fabrics, and there is nothing special about the preparation of the yarn in the carpet manufacture. Women help in the warping, dyeing and twisting of thread. The cotton yarn used usually consists of No. 10, No. 8, or No. 6 thread, six to ten being usually twisted together simultaneously.

THE LOOM FOR MANUFACTURE OF KALINS.

38. We have seen how the wool is carded, spun with wheels, boiled in *saji*, washed and coloured with indigenous or aniline dyes.

The warp is then prepared. The loom used for the manufacture of *galichas*, *dalichas*, and *asans* is a vertical loom. It really consists of two long beams, one or both of which are inserted in the walls of the house, to save upright beam. The warp is tied to a bamboo lath which in its turn is tied to the top beam, and then wrapped round this beam. The attachment of the lath to the beam is made in four or five places, where there are holes in the beam. The workman sits at the foot of the loom behind the warp in the case of the ordinary loom, but in front of the looms used in jails, and does the weaving and looping. The web, as it is woven, is wound round the lower beam of the loom, the upper beam paying out the warp. The attachment of the warp to the lower beam also is by means of a lath exactly like the one to which the warp is tied above, and which is tied to the beam below at four or five holes as in the case of the top beam. On the same loom one or half a dozen fabrics can be arranged to be woven.

39. The loom thus consists of a lower and an upper roller, which are capable of revolving, as occasion requires, on two uprights, or in holes in the walls themselves. The rollers have each a hole in which a pin is put, which serves to keep the roller or *kath* in position. When the operator wants to roll the prepared carpet and unfurl more warp for work, he unties the pins. From the ceiling along the whole length of the room overhead, or from a bamboo stretched along the length of the room, hang several rolls of various colours of thread for the pile for use as occasion requires. Just above the operator's head is firmly fixed another bamboo over which is suspended a curved lever to the ends of which are tied strings from alternate threads in the warp. Thus one set of threads is kept backward and the alternate set forward, and through the "shed" thus formed, the bundle of woof thread (which is of cotton) is passed. No shuttle is used, but only a ball of cotton or the cotton rolled over a six-inch long stick. The laying of the woof is done not tight and straight, but in a wavy or loose manner. Having put in two or three woof threads through the shed of the warp, made by alternate easing and tightening of the ends of the curved lever, as is done in horizontal looms, he takes

the strips of coloured wool hanging over-head and puts in at different places of the warp as much, and as many varieties of, wool as are necessary for his pattern. Each loop of coloured wool (or coloured cotton in the case of *dulichas*) is passed through one thread of the front set of warp, and one thread of the back set of the warp. He puts in two or three more weft threads again handling the hounds two or three times for producing alternate sheds, and then the coloured strips of wool are put in different places of the warp again, and the *panja* or iron comb is used each time to press in the web, i.e., after each layer of pile, and the two or three woof threads have been put in. Having woven and pressed home one series of pile thread and weft thread, the weaver uses his scissors to cut the wool evenly. In jails, before the scissors or rather shears are used, a teasing needle is employed to bring out the pile, which is now laid softly and evenly, like the pile of velvet, and not in separate threads, and the pile is drawn out firmly by the fingers, and in erect state cut out with the shears. This gives a soft feel to the pile, and the thick and even appearance of the pile of the jail carpets is due to this, while the pile of the Obra or the Patna carpet is harsh and thready in appearance. The sitting of the weaver in front of the loom and not behind (that he may work in full light) and the use of the teasing needle are very desirable. The pair of scissors used at Obra and at Patna has a loose pin round which the two prongs work, the exact distance between which has to be regulated by the finger to cut the wool up to the required length of the pile. In jails, shears provided with a spring are used. The more valuable the carpet, the greater is the force used in the hammering and setting with the comb, and the wider are the prongs of the scissors kept to make the cushion tight, thick and soft. The last operation in each series is the tying the edges usually with woollen thread. When the required pattern with borders is thus completed, some space is left unwoven, and another carpet is started afresh. The same warp does for weaving twenty *asans*, 2 feet square, and when the whole length is completed the web is unrolled, and pieces cut out at the unwoven parts. The pattern is reproduced from memory, and is

kept as a hereditary heir-loom, descending from father to son. Usually *asans* are sold to *mahajans* in twenties. Boys are taken on by *kulinahs* as apprentices, for 6 months up to one year and-a-half, when no pay is given to the apprentices but only food. Afterwards they are paid according to the work turned out, and they earn at first about 2 annas a day, but when well skilled, about 4 to 5 annas a day.

40. There are now few who will be willing to pay for the cost of a first class carpet like the famous Warangol (Hyderabad) carpet which belongs to Mr. Vincent Robinson and which was shown in the Indian Section of the South Kensington Museum. This carpet has 400 knots to a square inch, and the patterns on it are so complicated that a change of needle is required for every knot. A Warangol silken carpet 7 feet 5 inches long and 5 feet 2 inches wide, exhibited in Calcutta in 1883-84, was priced at Rs. 3,773, a woollen one to the same dimensions at Rs. 950, and a cotton one slightly larger at Rs. 790. One can imagine what such carpets had cost in labour, and how long it would take to produce them, and who could buy such carpets. It is only a veritable Nabob who can patronise an art of this sort, and art connoisseurs must be getting fewer every day in the hurry and scurry of the modern civilized world, and Nabobs are getting more and more scarce. A cheap imitation of the celebrated Persian carpet answers very well, and some of the Indian jails at least are keeping up this standard of excellence in Bengal, a standard which is valued at Rs. 2 a seer. Europeans are the great patrons of good carpets, and it is to be regretted that rich natives do not take a pride in the possession of Obra and other high class carpets. High class carpets alluded to here are not made in Bengal.

41. I saw at Obra a large ($9 \times 4\frac{1}{2}$ cubits) and to all outward appearance a very good, carpet which was made for a rich zamindar, on order, out of a pattern supplied by him, and the weavers had used cotton out of old quilts, aniline dyes, and the pressing of the wool and the pile had been done very lightly. I asked the weavers why they had behaved like this, and their reply was they

could not do any better when the price was fixed at Rs. 45. They could have done what was right if they were allowed Rs. 100 as price. If Obra weavers get Rs. 8-8 per square yard they can use new raw materials, Indian dyes, and they can press home the pile, with the woof, while weaving.

THE KARGA LOOM FOR DARRIS.

42. Twenty years ago, when the hand-loom industry of Patna was in its last stage, one Lain Mian, of Patna, who was a maker of cotton cloth and *satranjis*, conceived the idea of utilizing the ordinary hand-loom in the manufacture of *darris*. Since then, this hand-loom manufacture, called *karga darris*, has made vast strides, and the number of *darri*-makers has been increasing very fast. The *darri* can be made by one weaver with the new loom, while with the *panja* loom at least two men were required. The differences between the *karga* loom and the ordinary cloth loom are the following:—

- (1) Instead of a shuttle, a stick about a cubit long with the woof thread wound round it, is used.
- (2) The weft thread is purposely put in in a slack manner that it may not remain stretched and straight, but get woven into the texture. Owing to this important difference, mill-made *darris* will not be a success.

43. The *karga* loom, like the ordinary cloth loom, is set over a hollow, the healds (*gulla*) being worked with the feet from the hollow. It has also a *punchan*, or bow, made of two sticks ending in two pins, a sort of a bow to keep the width of the *darri* uniform. It has a *hata* with reed to press the woof tight. There is also, as in the cloth-loom, a warp beam (*bhajni*) to which, by means of a *danta*, or lath, the warp is attached, and round which, as

weaving goes on, the web is rolled. The other end of the warp hangs loosely over another *danta* which is tied to two ropes hanging from the ceiling as in some cloth-looms. The work goes on fast as in ordinary looms, one to two *darris* 6 feet by 3 feet being woven daily. A *than*, or piece, of three such *darris* is called *tikri*, and is sold for Rs. 2-4, *i.e.*, for 12 annas a piece. Larger sized *darris* (5 cubits by $2\frac{1}{2}$ cubits) are also made with the *karga* loom in pairs, that are called *te-gaja*. These are sold for Rs. 2-8 per couple. The profit to the master-weaver is 3 annas for the three pieces of a *tikri*, the workmen being paid 2 to 4 annas a day according to the quantity of work they turn out.

THE PANJA LOOM FOR SATRANJIS.

43. The width of the *durri* woven by the *karga* loom is necessarily limited to 4 or 5 feet, *i.e.*, the width to which human hands could go. The *satranjis* made with the old *panja* loom are not limited in width. The warp is stretched to its full length in this loom and not rolled up on a beam. When the width of the *satranji* is great,, more than two men have to work at it. When weaving, the two or more men sit on the web, and to prevent the web touching the ground, a plank is kept underneath. As in the *katlin* and *karga* loom, instead of a shuttle, a stick is used with the weft thread wound round it. There is no reed, as there is in the *karga* loom, but a *panja* is used, which is a palm-like piece of wood fitted with seven flattened pieces of iron stretched like fingers. The *panja* of the *satranji* loom has a wooden and straight handle and it has 7 forks, while the *panja* of a carpet loom has a bent iron handle and 12 to 14 forks. The healds or heddles which alternately raise or depress the threads of the warp are suspended from a bamboo stand which can be worked as the work proceeds. They are worked with the hand, and not with the foot, as in cloth looms and *karga* looms. The number of healds is the same as the number of men engaged. There being no cloth beam to warp the web round, the weavers move on from one end to the other, proceeding at the rate of 1 cubit

a day for *darris* of ordinary sizes. The jail rate is 4 square feet per day, but experts can work faster. The warp consists of twisted thread laid in two layers, the separation being made by the healds alternately raising one layer and depressing the other. The weavers work the dyed woof wound round the sticks. As one weaver receives the shuttle-stick, the other drives the woof home with the *panja*, raises the depressed layer of warp by means of the heddle, and the first weaver passes on the shuttle. This process goes on alternately. The four end threads of two layers of warp are four thick cords running lengthwise which represent the two thick lengthwise cords at the ends of the *satranji*. When the *darri* is woven up to the heddle-posts, the latter are moved on. When the work is finished the fag ends of the warp are twisted into knots. For a big *satranji* one man is exclusively employed to work the heddles, and three or four for weaving. No scissors are required for making *darris*, but only a bamboo stick for shuttle and a *panja*.

SUGGESTIONS FOR IMPROVEMENT.

44. (1) The industry should be planted in the modern centres of population and fashion, say, Calcutta, Dacca, Darjeeling, etc. In an out-of-the-place like Obra in the Aurungabad subdivision of Gaya, where there is not even a railway station, the industry has no chance. The actual manufacture may be carried on at Obra, but there should be at least show-rooms facing principal thoroughfares in large and important towns where only the best Obra carpets and *asans* should be kept.

(2) Only the most high class raw materials, such as lamb's wool sheared in spring, should be used. Silk (such as *kilchi* silk of silk filatures) should be also employed as is done in Hyderabad and other seats of industry. Agave fibre may be also employed as in Bhawalpur.

(3) The Commissioner of Patna may perhaps start a scholarship fund with the help of such of the local zamindars of Gaya and Patna as Rai Pasupati Nath Bose Bahadur, Babu Purnendra Narain

Singh, Sayyud Zaffar Nawab, etc., who are interested in industrial matters, and send two carpet weavers annually to learn the superior methods in use in Bikanir, Mirzapur, Bhawalpur, and Warangol. This will be the means of introducing improvements in the industry in the Patna Division. The Obra industry should be on a *par* with the Mirzapur industry at least.

(4) Only Indian vegetable dyes which produce fast colours should be used, and officers ordering carpets might insist on this, and proprietors of show-rooms in Calcutta, etc., may do likewise.

(5) Men trained in jails to weave carpets at present do not follow the profession of carpet-weavers when they go out. An organized attempt should be made with the help of jail authorities to get hold of these men and employ them in establishments started in Calcutta, Dacca, Darjeeling, etc, in connection with the show-rooms. Men willing to follow the occupation of carpet-weavers (and perhaps in the case of other industries taught in jails) may be handed over to their future employers a month before their release, that they may get a taste of their occupation outside the jail before they are actually released with a month's wages to their credit. This may induce them to come back after a temporary visit to their friends at home, and continue the industry in the factory. I understand the only objection of prisoners at present to following the avocation of carpet-weavers after their release, is want of capital. Government cannot be expected to start factories, but private European and Native capital ought to be directed into channels like this.

(6) The best jail methods at least should be followed in these factories, including the use of the teasing-needle, admittance of more light, and use of jail-patterns.

(7) The *darri* manufacturing industry needs no special encouragement, as it seems to be flourishing. District Officers may be asked to take interest in the matter, and get good *satranjis* and carpets exhibited in the local fairs. At the Sonepur Fair, specially good prizes may be offered to attract the best fabrics.

CONCLUSION.

45. In the preparation of this Monograph the following books and papers have been consulted:—

- (1) The reports from the District Officers specially written for this Monograph.
- (2) Sir George Birdwood's "The Industrial Arts of India."
- (3) Mr. T. N. Mukherji's "Art Manufactures of India."
- (4) Mr. N. N. Banerjei's "Monograph on the Cotton Fabrics of Bengal."
- (5) Mr. N. N. Banerjei's "Monograph on the Woollen Fabrics of Bengal."
- (6) Mr. N. N. Banerjei's "Dyes and Dyeing."
- (7) The Census Report for 1901.
- (8) Report on the Existing Arts and Industries of Bengal by Mr. E. W. Collin, I.C.S.

46. The information obtained from the above was supplemented by the personal observations of the writer of this Monograph at Obra in the district of Gaya, at Patna City, in the Church of England Zenana Mission Society's School at Barnagore, north of Calcutta, in the Indian Museum, and at the jail at Chaibassa in the district of Singhbhum.



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